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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/825,130	04/16/2004	Ken Whatmough	42783-0051	7995

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EXAMINER	
CHU, DAVID H	
ART UNIT	**PAPER NUMBER**
2628	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/30/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/825,130	WHATMOUGH, KEN	
	Examiner	Art Unit	
	David H. Chu	2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 March 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-11,14,16 and 17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-11,14,16 and 17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/13/2007 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 3, 4-5, 11, 14-15, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isaacs (U.S. Patent No. 5,894,308) in view of Williams et al. (PGPUB Document No. US 2002/0158880), and further in view of Probets (Document Engineering Lab, http://www.eprg.org/research/SVG/flash2svg/).

4. Note with respect to claim 1,

5. Isaacs teaches:

6. The method of reducing the number of polygons in a 3D object (col. 7, line 13-27), wherein the 3D object is converted in triangle form (col. 5, line 57-67).

7. Further, one of the methods taught by Isaacs teaches reducing the number of polygons according to the length of edges of the triangles, wherein the length of a triangle serve as a threshold (col. 8, line 22-36) (col. 6, line 53-65). As shown in FIGS. 8a - 8b, it is clear that the smaller triangles on the left of FIG. 8a are combined and redefined as the corresponding bigger triangles of FIG 8b.

8. Note further, Isaacs teaches, in admitted art that a more realistic rendering of the 3D object by filling in the polygons with various colors (col. 1, line 20-25).

9. Therefore, the teachings of Isaacs is the equivalent to:

10. (ii) Combining at least some of the triangles in the groups of triangles into further polygon shapes that fall within predetermined complexity thresholds.

11. Further, it would have been obvious to one of an ordinary skill in the art to apply the teachings admitted in the background of Isaacs to convert the 3D model into polygons of different shape (not only triangles) and apply the triangulation teachings of Isaacs to redefined them into triangles, as recited by applicant, because this will allow simple/efficient calculations when carrying out the combining steps.

12. However, Isaacs does not expressly teach:

13. The triangulated 3D object to be in the path form, as recited by applicant.

14. Williams et al. teaches:

15. Triangulation of a colored model of a 3D colored object associating with texture map/color scan data [0033].

16. This is the equivalent to the **path form** of the applicant, wherein the path form includes **path elements** [triangles] associated with a **fill style** [texture map/color scan data], and the path elements **collectively describe** the graphic object [3D object].

17. Therefore, it would have been obvious to one of an ordinary skill in the art to apply the triangulation teachings associated with texture map/color scan data of Williams et al. to the triangulation teachings of Isaacs, because this will allow a more realistic rendering of the 3D object while achieving faster rendering time. This allows light weight but highly realistic and accurate models of 3-dimensional colored objects [Williams et al., 0009].

18. Note further, the combined teachings of Isaacs and Williams et al. does not expressly teach:

19. The 3D object being in **edge record format**.

20. Probets teaches:

21. The creation of SVG paths and groups from the shape and vector information contained in the SWF file (Document Engineering Lab, "Flash and SVG").

22. The shapes of the SWF file being defined by a series of moveto, lineto and curveto operations with associated fill and stroke colors and patterns. Further, Probets includes a sample code that is the equivalent to the **edge record format** disclosed by the applicant (Document Engineering Lab, "Semantics of Macromedia's Flash (SWF) Format and its Relationship t SVG", Section: "Tags, Shapes and Frames").

23. Therefore, it would have been obvious to one of an ordinary skill in the art to modify the combined teachings of Isaacs and Williams to use the SWF file taught by Probets as the source file (in place of the 3D object) for triangulation, because this will further allow the triangulation/conversion of 2D objects for added range of source files for polygon reduction.

24. Note further, Isaacs teaches automatically converting a 3D object comprising of polygons to lower complex model based on a threshold selected by a user (col. 3, line 54-56)

25. Further, it is well known in the art to send information/data to a mobile device (laptop computer etc.) because this allows sending and receiving information (converted 3D object) regardless of being constrained to location and time.

26. Therefore, at the time of the invention, it would have been obvious to one of an ordinary skill in the art to send the converting 3D object of the combined teachings of Isaacs, Williams and Probets to a wireless device, because this allows sending and receiving information to any device without being constrained to location and time.

27. Note with respect to claim 3,

28. Isaacs teaches:

29. The triangulation process of the 3D object including the step of constructing data structures that associate vertices and edges within the model. Further Isaacs teaches that data structure of an array of points and polygons contain coordinates that are **unique** relative to others.

30. Therefore, it is inherent that the **edges** and **vertex** has been **identified**, as recited by applicant

31. However, Isaacs does not expressly teach:

32. The triangulation process associating **fill style** information with the vertices and edges.

33. Probets teaches:

34. For the process of converting an SWF file to SVG, the steps of identifying each vertex, edges and the fill style associated herewith (Document Engineering Lab, "Semantics of Macromedia's Flash (SWF) Format and its Relationship t SVG", Section: "Tags, Shapes and Frames").

35. Therefore, it would have been obvious to one of an ordinary skill in the art to apply the SWF-to-SVG conversion teachings to the 3D object-to-Triangle form teachings of Isaacs, because this will allow the conversion of 2D objects for added range of sources files for polygon reduction.

36. Note with respect to claim 4,

37. Probets teaches a **SVG format** as discussed above with respect to claim rejections 2 and 3.

38. Note with respect to claim 5,

39. Probets teaches a **flash file format** as discussed above with respect to claim rejections 2 and 3.

40. Note with respect to claim 11, claim 11 is similar in scope to the claims 1 and 3, thus the rejections to claims 1 and 3 hereinabove are also applicable to claim 11.

41. Note with respect to claim 14, refer to claim rejection 1 discussed above.

42. Further Isaacs teaches:

A computer system (FIG. 1), wherein the Polygon Reduction Editor is a component of the system.

43. Note with respect to claim 17, refer to claim rejection 1 discussed above.

44. Further, Isaacs teaches a Polygon Reduction Editor.

45. Claims 6-10 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isaacs, in view of Williams et al., and Probets as applied to claims 1 and 14 above, and further in view of Noyle (U.S. Patent No. 6,874,150), and further in view of W3C (W3C, http://www.w3.org/TR/SVGMobile/).

46. Note with respect to claim 6,

47. Isaacs does not expressly teach:

48. The second format graphic object data including information defining the further polygons,

49. The method including a step of sending the second format graphic object data over a communications link to a viewing device having predetermined capabilities, and

50. Wherein the complexity thresholds are based on the predetermined capabilities of the viewing device.

51. W3C teaches:

52. SVG Tiny and Basic that are specifically used in mobile phones and PDA (W3C, "Mobile SVG Profiles: SVG Tine and SVG Basic").

53. It is well known in the art to send data over a communication link to a mobile phone and a PDA.

54. Noyle teaches:

55. A method and system are provided for controlling the algorithmic elements in 3D graphics system.

56. Noyle further teaches the advantages of processing a triangle because of its efficiency (col. 16, line 26-52).

57. Therefore, the teachings of Noyle suggest the limitations [**complexity threshold**] of a processor, processing images on a screen by only using triangle polygons, by teaching the advantages of processing a triangle.

58. It is well known in the art that a processor have direct affect/relation to the capability of the viewing device.

59. Therefore, it would have been obvious to one of an ordinary skill in the art to apply SVG Profiles teachings that are specific for mobile phone and PDA, and send data over a communications link, to the SWF-to-SVG conversion teachings of Probets and the 3D object-to-Triangle form teachings of Isaacs, because this will allow the user receiving/sending data to their PDA or mobile phone.

60. Further, it would have been obvious to one of an ordinary skill in the art to apply the triangle processing teachings of Noyle to the above teachings, because this will allow efficient rendering of images on a display device without exceeding the capabilities of said device.

61. Note with respect to claim 7,

62. Isaacs teaches:

63. The different types of thresholds for reducing the number of polygons (col. 7, line 9-20).

64. Further, the triangles and triangles after polygon reduction of Isaacs inherently have **continuous interior fill style region without internal island contours**.

65. However, Isaacs does note expressly teach:

66. The further polygons each have a continuous interior fill style region without internal island contours according to **complexity threshold**.

67. As discussed above Noyle teaches the complexity threshold of a viewing device.

68. Therefore, it would have been obvious to one of an ordinary skill in the art to apply the triangle processing teachings of Noyle to the 3D object-to-Triangle form teachings of Isaacs, because this will allow efficient rendering of images on a display device without exceeding the capabilities of said device.

69. Note with respect to claim 8,

70. Isaacs teaches:

71. The different types of thresholds for reducing the number of polygons (col. 7, line 9-20).

72. Further, the triangles and triangles after polygon reduction of Isaacs inherently only have **convex vertices**.

73. However, Isaacs does note expressly teach:

74. The further polygons each have only convex vertices according to **complexity threshold**.

75. As discussed above Noyle teaches the complexity threshold of a viewing device.

76. Therefore, it would have been obvious to one of an ordinary skill in the art to apply the triangle processing teachings of Noyle to the 3D object-to-Triangle form teachings of Isaacs, because this will allow efficient rendering of images on a display device without exceeding the capabilities of said device.

77. Note with respect to claim 9,

78. Isaacs teaches:

79. The different types of thresholds for reducing the number of polygons (col. 7, line 9-20).

80. Further, the triangles and triangles after polygon reduction of Isaacs inherently have **under a predetermined number of sides**, as the polygons are always in triangle form. .

81. However, Isaacs does note expressly teach:

82. The further polygons each have under a predetermined number of sides according to **complexity threshold**.

83. As discussed above Noyle teaches the complexity threshold of a viewing device.

84. Therefore, it would have been obvious to one of an ordinary skill in the art to apply the triangle processing teachings of Noyle to the 3D object-to-Triangle form teachings of Isaacs, because this will allow efficient rendering of images on a display device without exceeding the capabilities of said device.

85. Note with respect to claim 10,

86. Isaacs teaches:

87. The different types of thresholds for reducing the number of polygons (col. 7, line 9-20).

88. Further, each of the triangles and triangles after polygon reduction of Isaacs inherently are **simple polygons**.

89. However, Isaacs does note expressly teach:

90. Each of the further polygons being simple polygons according to **complexity threshold**.

91. As discussed above Noyle teaches the complexity threshold of a viewing device.

92. Therefore, it would have been obvious to one of an ordinary skill in the art to apply the triangle processing teachings of Noyle to the 3D object-to-Triangle form teachings of Isaacs, because this will allow efficient rendering of images on a display device without exceeding the capabilities of said device.

93. Note with respect to claim 16, refer to claim rejections 1 and 7-10 discussed above.

Response to Arguments

94. Applicant's arguments filed 3/13/2007 have been fully considered but they are not persuasive.

95. Following are the applicant's arguments and examiner's response.

96. The applicant argues:

- Isaacs is not concerned with or related to the automated conversion of graphic for delivering to mobile devices

  [*Isaacs teaches automatically converting a 3D object comprising of polygons to lower complex model based on a threshold selected by a user (col. 3, line 54-56)*
  Further, it is well known in the art to send information/data to a mobile device (laptop computer etc.) because this allows sending and receiving information (converted 3D object) regardless of being constrained to location and time]

- Isaacs teaches a polygon reduction algorithm which is different from the claimed invention that converts the graphics for efficient delivery to mobile devices

  [*In response to applicant's arguments, the recitation "efficient delivery to wireless devices" has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See In re Hirao, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and Kropa v. Robie, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).*

Note further, the combined teachings of Isaacs and Williams teaches reducing the complexity of a 3D object while enabling high detail by the use of texture maps. A low complexity model with detail is data that can be efficiently delivered to wireless devices]

- Isaacs does not mention the application to mobile devices, or the transmission of converted graphics to mobile devices over a wireless network as in the amended claims

  [*refer to response to arguments above*]

- There is no motivation to combine references Isaacs with Williams
  - The two references are contrary to one another, wherein Williams teaches compensating for the loss of detail caused by low complexity geometric models and Isaacs teach reducing the level of detail in a 3D object by removing smaller polygons

    [*The examiner stated in the previously presented action that developers look for balance in rendering time/efficiency and detail. Applying the polygon texture/color teachings of Williams to the efficient rendering teachings of Isaacs clearly provide developers a more realistic representation of a 3D object while achieving faster rendering time. This allows light weight but highly realistic and accurate models of 3-dimensional colored objects [Williams et al., 0009]*]
  - The examiner relies on hindsight

    [*refer to response to arguments above*]

Conclusion

97. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David H. Chu whose telephone number is (571) 272-8079. The examiner can normally be reached on M-TH 9:00am - 7:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark k. Zimmerman can be reached on (571) 272-7653. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DHC

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